

REMARKS

Claims 1- 26 are pending in the instant patent application. Three replacement drawing sheets are attached. No new matter has been added.

DRAWINGS

37 CFR 1.83(a)

Figures 1A through 3 of the drawings are objected to. Specifically it is put forth that Figures 1A through 3 should be designated by a legend such as "prior art." Corrected drawings in compliance with 37 CFR 1.121(d) were requested.

Applicant respectfully submits corrected drawings for Figures 1A through 3. The replacement drawings comply with 37 CFR 1.121(d). Figures 1A through 3 are all designated with the legend "PRIOR ART," and all replacement sheets are labeled as "REPLACEMENT SHEET" in the header per 37 CFR 1.84(c). As noted previously, three replacement sheets are attached.

CLAIM REJECTIONS

35 U.S.C. §102 Rejections

Claims 1, 2, 23, and 24 are rejected under 35 U.S.C. §102(b), as being anticipated by prior art Figure 1A. Applicant has reviewed the cited reference,

and submits that embodiments of the present invention as recited in Claims 1, 2, 23, and 24 are neither anticipated nor rendered obvious by prior art Figure 1A.

Examiner is respectfully directed to independent Claim 1, which recites that an embodiment of the present invention is directed to a fan speed controller comprising, "... a drive stage circuit coupled to said pulse width modulation generator and for switch mode converting a supply voltage into a linear voltage for driving a fan, wherein a voltage level of said linear voltage is a function of said pulse width modulation signal." Independent Claim 23 recites similar limitations to those of Claim 1. Claim 2 depends from Claim 1 and recites further limitations of the claimed invention. Claim 24 depends from Claim 23 and recites further limitations of the claimed invention.

Applicant respectfully submits that prior art Figure 1A does not teach or suggest, either expressly or inherently, switch mode converting a supply voltage into a linear voltage for driving a fan, wherein a voltage level of said linear voltage is a function of said pulse width modulation signal, as is taught in the present invention. Instead, prior art Figure 1A teaches away from driving a fan with a linear voltage as claimed. Specifically prior art Figure 1A teaches a drive transistor 145, which drives fan 190 with a periodic rectangular wave that is a function of the duty cycle of V_{pwm} applied to transistor 145. See e.g., Figures 1A, 2A, and 3A of the present invention. A rectangular waveform is not a linear voltage. Consequently, the prior art Figure 1A reference does not anticipate or

render obvious, the embodiments of the Applicant's invention as recited in Claims 1 and 23, and as such Claims 1 and 23 overcome the rejection under 35 U.S.C. 102(b). Accordingly, the Applicant also respectfully submits that prior art Figure 1A fails to anticipate or render obvious the Applicant's invention as set forth in Claim 2 dependent on Claim 1, or Claim 24 dependent on Claim 23, and that Claims 2 and 24 overcome the rejection under 35 U.S.C. 102(b) through dependency on allowable base claims.

Claims 1 - 4 and 23 - 26 are rejected under 35 U.S.C. §102(b), as being anticipated by Huynh et al. U.S. Patent No. 6,040,668 (hereinafter Huynh). Applicant has reviewed the cited reference, and submits that embodiments of the present invention as recited in Claims 1 - 4 and 23 - 26 are neither anticipated nor rendered obvious by Huynh.

Applicant respectfully submits that Huynh does not teach or suggest, either expressly or inherently, switch mode converting a supply voltage into a linear voltage for driving a fan, wherein a voltage level of said linear voltage is a function of said pulse width modulation signal, as is taught in the present invention. Instead, Huynh has the same deficiency as prior art Figure 1A.

Huynh teaches away from the present invention as claimed by teaching a drive transistor Q1 that will drive fan 24 with a pulse train (rectangular waveform) that is a function of the duty cycle of VO 22 applied to transistor Q1.

See e.g., col. 3, lines 3 - 5 and Figure 1 of Huynh. Huynh provides a pulse width modulated signal for driving a fan directly or through an external driver. See e.g., col. 2, lines 57 - 58 of Huynh. The drive signal is either pulse width modulated or pulse frequency modulated to provide a controllable drive signal frequency. See e.g., col. 2, lines 38 - 43. A linear voltage, as claimed in the present invention, does not have a frequency and is not a pulse train.

Consequently, Huynh does not anticipate or render obvious, the embodiments of the Applicant's invention as recited in Claims 1 and 23, and as such Claims 1 and 23 overcome the rejection under 35 U.S.C. 102(b). Accordingly, the Applicant also respectfully submits that Huynh fails to anticipate or render obvious the Applicant's invention as set forth in Claims 2 - 4 dependent on Claim 1, or Claims 24 - 26 dependent on Claim 23, and that Claims 2 - 4 and 24 - 26 overcome the rejection under 35 U.S.C. 102(b) through dependency on allowable base claims.

35 U.S.C. §103 Rejections

Claims 5 - 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huynh in view of Cheng et al. U.S. Patent No. 6,853,569 (hereinafter Cheng). Applicant has reviewed the cited references, and respectfully submits that the embodiments of the present invention as recited in Claims 5 - 22 are

neither anticipated nor rendered obvious by Huynh in view of Cheng, either alone or in combination.

Examiner is respectfully directed to independent Claim 8, which recites that an embodiment of the present invention is directed to a fan speed controller with a drive structure, said drive structure comprising:

... a first transistor having a gate for receiving said pulse width modulation signal and a source coupled to a first potential;
a current shunting element having a first terminal coupled to a drain of said first transistor and a second terminal coupled to a second potential;
a capacitor having a first terminal coupled to said second terminal of said current shunting element; and
an inductor having a first terminal coupled to a second terminal of said current shunting element and to said drain of said first transistor.

Claim 5 (which depends from Claim 1) recites similar limitations to those of Claim 8. Claims 9 - 22 depend from Claim 8 and recites further limitations of the claimed invention. Claims 6 - 7 depend from dependent Claim 5 and recite further limitations of the claimed invention.

Applicant respectfully submits that Cheng does not teach or suggest, either expressly or inherently, the drive stage structure of the embodiment as claimed in the present invention. The circuit disclosed in Cheng teaches away from the present invention as claimed by requiring many more components to implement. The drive stage structure as claimed in the embodiment of the present invention requires one transistor, one current shunting element, one capacitor, and one

inductor. Whereas, the minimum number of components required to implement the circuit in Cheng includes four transistors, four current shunting elements (diodes), three capacitors, and one inductor. See e.g., Figures 1, 2, 3, and 4 and col. 3, line 50 - 67.

Further, Cheng also teaches away from the claimed embodiment of the present invention by teaching a markedly different connection sequence of the components. In Cheng, a series capacitor 13 and inductor 14 are connected across two series transistors (4, 6) and two series shunting elements (8, 10). See e.g., Figure 1 and col. 3, lines 62 - 63. However, in the claimed embodiment of the present invention a series capacitor and inductor are only connected across a single shunt and not across any transistors. The circuits of Cheng and the present invention as claimed share some similar components, but they comprise entirely different structures. Therefore, the embodiments of the Applicant's invention set forth in Claims 8 and 5 are neither anticipated nor rendered obvious by Cheng. Likewise, embodiments of the present invention as claimed in Claims 6 - 7 which depend from Claim 5, and Claims 9 - 22 which depend from Claim 8 are neither anticipated nor rendered obvious by Cheng.

Applicant respectfully submits that Huynh does not cure the deficiencies of Cheng noted above. Huynh is silent with respect to the drive stage structure disclosed in Claim 8 (from which Claims 9 - 22 depend). Consequently, the embodiments of the Applicant's invention set forth in Claims 8 and 5 (from which

Claims 6 - 7 depend) are neither anticipated nor rendered obvious by Cheng or Huynh, either alone or in combination. Likewise, embodiments of the present invention as claimed in Claims 6 - 7 and Claims 9 - 22 are neither anticipated nor rendered obvious by Cheng or Huynh, either alone or in combination.

Consequently, the combination of Cheng and Huynh does not anticipate or render obvious, the embodiments of the Applicant's invention as recited in Claims 8 and 5, and as such Claims 8 and 5 overcome the rejection under 35 U.S.C. 103(a). Accordingly, the Applicant also respectfully submits that the combination of Cheng and Huynh fails to anticipate or render obvious the Applicant's invention as set forth in Claims 9 - 22 dependent on Claim 8, or Claims 6 - 7 dependent on Claim 5, and that Claims 6 - 7 and 9 - 22 overcome the rejection under 35 U.S.C. 103(a) through dependency on allowable base claims.

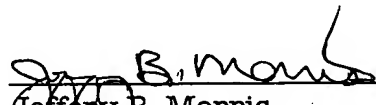
SUMMARY

In view of the foregoing remarks, the Applicant respectfully submits that the pending claims in the instant patent application are in condition for allowance. The Applicant respectfully requests reconsideration of the Application and allowance of the pending claims.

If the Examiner determines the prompt allowance of these claims could be facilitated by a telephone conference, the Examiner is invited to contact Jeffery B. Morris at the below listed phone number.

Respectfully submitted,
WAGNER, MURABITO & HAO LLP

Dated: June 2nd, 2005


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AMENDMENTS TO THE DRAWINGS

Three replacement sheets of drawings are attached. Replacement sheet 1 (labeled 1/6) contains revised legends for Figure 1A and Figure 1B. The legends are revised to indicate prior art. Replacement sheet 2 (labeled 2/6) contains revised legends for Figure 1C and Figure 2A. The legends are revised to indicate prior art. Replacement sheet 3 (labeled 3/6) contains revised legends for Figure 2B and Figure 3. The legends are revised to indicate prior art.

Attachments: 3 Replacement Sheets